2. Compliance Summary

LLNL activities comply with federal, state, and local environmental regulations, internal requirements, Executive Orders, and DOE Orders as specified in Contract DE-AC52-07NA27344. This chapter provides an overview of LLNL's compliance programs and activities during 2012.

2.1 Environmental Restoration and Waste Management

2.1.1 Comprehensive Environmental Response, Compensation and Liability Act

Ongoing remedial investigations and cleanup activities for legacy contamination of environmental media at LLNL fall under the jurisdiction of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), Title I of the Superfund Amendments and Reauthorization Act (SARA). CERCLA is commonly referred to as the Superfund law.

CERCLA compliance activities for the Livermore Site and Site 300 are summarized in **Sections 2.1.1.1** and **2.1.1.2**. Community relations activities conducted by DOE/LLNL are also part of these projects. See **Chapter 7** for more information on the activities and findings of the investigations.

2.1.1.1 Livermore Site Ground Water Project

The Livermore Site came under CERCLA in 1987 when it was placed on the National Priorities List. The Livermore Site Ground Water Project (GWP) complies with provisions specified in a Federal Facility Agreement (FFA) entered into by the U.S. Environmental Protection Agency (EPA), DOE, the California EPA's Department of Toxic Substances Control (DTSC), and the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB). As required by the FFA, the GWP addresses compliance issues by investigating potential contamination source areas (e.g., suspected old release sites, solvent-handling areas, leaking underground tank systems), monitoring water quality through an extensive network of wells, and remediating contaminated soil and groundwater. The primary soil and groundwater contaminants (constituents of concern) are common volatile organic compounds (VOCs), primarily trichloroethylene (TCE) and perchloroethylene (PCE). Background information on LLNL Livermore Site environmental characterization and restoration activities are presented in the *CERCLA Remedial Investigation Report for the LLNL Livermore Site* (Thorpe et al. 1990). The *LLNL Ground Water Project 2012 Annual Report* (Buscheck et al. 2013) presents the current status of clean up at the Livermore Site.

Regulatory Milestones. The Livermore Site environmental restoration project had 11 milestones scheduled for completion in calendar year 2012. The following deliverables were submitted to the regulatory agencies:

- Fourth Quarter 2011 Self-Monitoring Report
- 2011 Annual Report
- First, Second, and Third Quarter 2012 Self-Monitoring Report
- Interim Summary Report for TFD Helipad *in situ* Bioremediation Treatability Test
- Draft, Draft Final, and Final Fourth Five-Year Review

The other regulatory milestones included the following:

- Receive regulatory comments on Draft Fourth Five-Year Review
- Begin groundwater extraction at Treatment Facility A (TF) West

All calendar year 2012 milestones were met.

Treatment Facilities. During 2012, the Livermore GWP maintained 28 groundwater and 9 soil vapor treatment facilities. The groundwater extraction wells and dual phase extraction wells extracted about 1,086 million L of groundwater during 2012. The dual-phase extraction wells and soil-vapor extraction wells together removed 1.5 million m^3 of soil vapor.

In 2012, the Livermore GWP treatment facilities removed about 76 kg of VOCs. Since remediation efforts began in 1989, more than 17.7 billion L of groundwater and approximately 15.3 million m^3 of soil vapor have been treated, removing about 3,045 kg of VOCs.

During 2012, the offsite Arroyo Seco pipeline was extended to expedite treatment of an offsite VOC groundwater plume. Beneath the site, groundwater concentration and hydraulic data indicate subtle but consistent declines in VOC concentrations and areal extent of contaminant plumes in 2012. Hydraulic containment along the western and southern boundaries of the site was fully maintained in 2012, and progress was made toward interior plume and source area clean up. See Buscheck et al. (2013) for more information.

Community Relations. Livermore Site community relations activities in 2012 included regular communication and meetings with Livermore senior leaders, local, regional, and national elected officials, as well as presentations to interest groups and other community organizations, including a CERCLA Community Working Group (CWG) meeting held on November 14, 2012. Other environmental-related activities include maintenance of information repositories and an administrative record; periodic meetings with members of Tri-Valley Communities Against a Radioactive Environment (Tri-Valley CAREs) and the organization's scientific advisor as part of the activities funded by an EPA Technical Assistance Grant (TAG); and tours of site environmental activities. In addition, DOE/LLNL environmental documents, letters, and public notices are also maintained on a public website: http://www-envirinfo.llnl.gov.

2.1.1.2 Site 300 Environmental Restoration Project

Remedial activities are ongoing at Site 300, which became a CERCLA site in 1990 when it was placed on the National Priorities List. Remedial activities are overseen by the EPA, the Central Valley Regional Water Quality Control Board (CVRWQCB), and DTSC, under the authority of an FFA for the site. Contaminants of concern at Site 300 include VOCs (primarily TCE), high-explosive compounds, tritium, depleted uranium, silicone-based oils, nitrate, perchlorate, polychlorinated biphenyls, dioxins, furans, and metals. The contaminants present in environmental media vary within the different environmental restoration operable units (OUs) at the site. See Webster-Scholten (1994) and Ferry et al. (1999) for background information on LLNL environmental characterization and restoration activities at Site 300. The *LLNL Site 300 2012 Annual Compliance Monitoring Report* (Dibley et al. 2013) presents the current status of clean up at Site 300.

Regulatory Milestones. The Site 300 environmental restoration project had 8 milestones scheduled for completion in calendar year 2012. The following deliverables were submitted to the regulatory agencies:

- Annual 2011 Compliance Monitoring Report
- Draft Final and Final Building 834 Five-Year Review
- Draft and Draft Final High Explosives Process Area Five-Year Review
- Draft Operable Units 3 and 8 Five-Year Review
- First Semester 2012 Compliance Monitoring Report

The other regulatory milestones included:

- Regulatory comments due on Draft High Explosives Process Area Five-Year Review

All calendar year 2012 milestones were met.

Treatment Facilities. During 2012, the Site 300 Environmental Restoration Project (ERP) operated 15 groundwater and 5 soil vapor treatment facilities at Site 300. The groundwater extraction wells and dual-phase extraction wells extracted about 38.3 million L of groundwater during 2012. The dual-phase extraction wells and soil-vapor extraction wells together removed 2.8 million m^3 of soil vapor.

In 2012, the Site 300 treatment facilities removed nearly 20 kg of VOCs, 0.081 kg of perchlorate, 1,500 kg of nitrate, 0.19 kg of the high explosive compound RDX, 0.00023 kg of silicone oils (TBOS/TKEBS), and 0.0049 kg of uranium. Since ground water remediation began in 1990, approximately 1,538 million L of ground water and 20.4 million m^3 soil vapor have been treated, resulting in removal of more than 580 kg of VOCs, 1.3 kg of perchlorate, 12,000 kg of nitrate, 1.8 kg of RDX, 9.5 kg of silicone oils, and 0.017 kg of uranium.

Remediation efforts in the Eastern General Services Area (GSA) have successfully reduced concentrations of TCE and other VOCs in ground water to below their respective cleanup standards set in the GSA Record of Decision (ROD) (United States [U.S.] Department of Energy [DOE], 1997). The Eastern GSA ground water extraction and treatment system was shut off on

February 15, 2007 with the U.S. EPA, CVRWQCB, and California DTSC approval. As required by the GSA ROD, ground water monitoring was conducted for five years after shutdown to determine if VOC concentrations rise or "rebound" above cleanup standards. TCE concentrations remained below the 5 μg/L cleanup standard for all Eastern GSA ground water samples collected during post-shutdown monitoring. The results of the post-shutdown monitoring were presented at the February 24, 2012 Remedial Project Manager's (RPM) Meeting. At the RPM meeting, the regulatory agencies agreed that cleanup of the Eastern GSA was completed, monitoring and reporting could cease, and closeout documentation should be completed. The *Draft Final Close-Out Report for the Eastern General Services Area of Operable Unit 1* was submitted to the regulatory agencies for review in December 2012.

Community Relations. Site 300 community relations activities in 2012 included communication and meetings with neighbors and/or local, regional, and national interest groups and other community organizations; public presentations; maintenance of information repositories and an administrative record; tours of site environmental activities; and responses to public and news media inquiries. In addition, DOE/LLNL met with members of Tri-Valley CAREs and the organization's scientific advisor as part of the activities funded by an EPA TAG. Community questions were also addressed via electronic mail, and project documents, letters, and public notices were posted on a public website: http://www-envirinfo.llnl.gov.

2.1.2 Emergency Planning and Community Right-to-Know Act and Toxics Release Inventory Report

Title III of SARA, known as the Emergency Planning and Community Right-to-Know Act (EPCRA), requires owners and operators of facilities who handle certain hazardous chemicals on site to provide information on the release, storage, and use of these chemicals to organizations responsible for emergency response planning. Executive Order 13423, Strengthening Federal Environmental, Energy, and Transportation Management, directs all federal agencies to comply with the requirements of the EPCRA, including SARA, Section 313, the Toxic Release Inventory (TRI) Program. EPCRA requirements and LLNL compliance are summarized in **Table 2-1.**

LLNL has reported lead release data via the Form R for Site 300 since 2002. The Form R is used for reporting TRI chemical releases and includes information about waste management and waste minimization activities. Over 99 percent of lead releases are associated with activities at the Site 300 Small Firearms Training Facility (SFTF). Data for the 2011 TRI Form R for lead at Site 300 was submitted to DOE/NNSA on June 18, 2012. Over the past several years, the lead releases have decreased due to increased use of frangible bullets.

Table 2-1. Compliance with EPCRA.

EPCRA section	Brief description of requirement	LLNL action
302	Notify State Emergency Response Commission (SERC) of presence of extremely hazardous substances.	Originally submitted 5/87.
303	Designate a facility representative to serve as emergency response coordinator.	Update submitted 6/20/11 to San Joaquin County for Site 300 and 6/20/11 to Alameda County for Livermore Site.
304	Report releases of certain hazardous substances to SERC and Local Emergency Planning Committee (LEPC).	No EPCRA-listed extremely hazardous substances were released above reportable quantities in 2012.
311	Submit MSDSs or chemical list to SERC, LEPC, and Fire Department.	As per the California Emergency Management Agency, the EPCRA Section 311 requirement is satisfied by the EPCRA Section 312 submittal and the filing of necessary amendments within 30 days of handling a previously undisclosed hazardous material subject to Section 312 inventory requirements.
312	Submit hazardous chemical inventory to local administering agency (county).	Submitted to San Joaquin and Alameda counties on 1/30/12 and 3/1/12, respectively.
313	Submit Form R to U.S. EPA and California EPA for toxic chemicals released above threshold levels.	Form R for lead for Site 300 submitted to DOE on 6/18/12; DOE forwarded it to U.S. EPA and California EPA on 6/18/12.

2.1.3 California Accidental Release Prevention Program

The California Accidental Release Prevention (CalARP) Program is the combined federal and state program for the prevention of accidental release of regulated toxic and flammable substances. The goal of the combined program is to eliminate the need for two separate and distinct chemical risk management programs. The purpose of the CalARP program is to prevent accidental releases of substances that can cause serious harm to the public and the environment, to minimize the damage if releases do occur, and to satisfy Community Right-to-Know laws. The CalARP program is implemented at the local government level by Certified Unified Program Agencies (CUPAs).

In June 2000, LLNL Site 300 submitted a risk-management plan (RMP) to the San Joaquin County, Office of Emergency Services (SJCOES). The RMP described the systems in place to prevent or mitigate the hazards associated with chlorine used in the LLNL Site 300 water treatment system. In accordance with the Final CalARP Program Regulations in the California Code of Regulations (Title 19, Division 2, Chapter 4.5), the LLNL Site 300 RMP was last updated in September 2010. The related federal regulations are the Clean Air Act 112(r) and Title 40 of the Code of Federal Regulations (CFR), Part 68. It has been determined that the Site 300 water treatment system falls under CalARP Program Level 2. This plan is updated at least every five years.

LLNL submitted a revised Livermore Site CalARP Level 1 RMP in December 2011. The Livermore Site RMP includes lithium hydride and nitric acid.

2.1.4 Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) provides the framework at the federal level for regulating solid wastes, including wastes designated as hazardous. The California Hazardous Waste Control Law (HWCL) and California Code of Regulations (CCR) Title 22 set requirements for managing hazardous wastes and implementing RCRA in California. LLNL works with DTSC and CUPA to comply with these regulations and obtain hazardous waste permits.

The hazardous waste management facilities at the Livermore Site consist of permitted units in Area 612 and Building 625 plus Buildings 693, 695, and 696, which make up the Decontamination and Waste Treatment Facility (DWTF). Permitted waste-management units include container storage, tank storage, and various treatment processes (e.g., wastewater filtration, blending, and size reduction). LLNL submitted the permit renewal application to DTSC in April 2009, followed by submittal of the human health risk assessment (HHRA) in December 2010 as part of the permit renewal process. Furthermore, LLNL made significant progress with the DTSC regulated closure of Building 419. All closure activities have been completed, the project site has been covered with an asphalt layer, and LLNL is in the process of completing the final Closure Report and risk assessment for polychlorinated biphenyl (PCB) subsurface contamination. In addition, during 2011/2012, LLNL submitted several Class 1 permit modification requests to DTSC, all of which have been approved and implemented.

The hazardous waste management facilities at Site 300 consist of three operational RCRA-permitted facilities. The Explosives Waste Storage Facility (EWSF) and the Explosives Waste Treatment Facility (EWTF) are permitted to store and treat explosives waste, respectively. The Building 883 container storage area (CSA) is permitted to store routine facility-generated waste such as spent acids, bases, contaminated oil, and spent solvents. Site 300 has one post-closure permit for the RCRA-closed Building 829 High Explosives Burn Pits. LLNL is currently in the process of renewing the hazardous waste facility permit for EWSF, EWTF, and Building 883 CSA, as well as the Building 829 post-closure permit. Transportation of hazardous or mixed waste over public roads occurs by DTSC-registered transporters, including LLNL.

2.1.5 California Medical Waste Management Act

All LLNL medical waste management operations are conducted in accordance with the California Medical Waste Management Act (CMWMA). The program is administered by the California Department of Public Health (DPH) and is enforced by the Alameda County Department of Environmental Health (ACDEH). LLNL's medical waste permit is renewed on an annual basis and covers medical waste generation and treatment activities for the six Biosafety Level (BSL) 2 facilities, and the BSL 3 facility at Building 368.

2.1.6 Radioactive Waste and Mixed Waste Management

LLNL manages radioactive waste and mixed waste in compliance with applicable sections of DOE Order 435.1, and the LLNL-developed *Radioactive Waste Management Basis for the Lawrence Livermore National Laboratory* (LLNL 2009), which summarizes radioactive waste management controls relating to waste generators and treatment and storage facilities. Additional

information on the management of radioactive and mixed wastes, prepared by Environmental Functional Area (EFA), is available to LLNL employees in the *Environment, Safety and Health (ES&H) Manual.* LLNL does not release to the public any property with residual radioactivity above the limits specified in DOE Order 458.1. Excess property of this type is either transferred to other DOE facilities for reuse or transferred to LLNL's Radioactive and Hazardous Waste Management for disposal. There were no releases of radiation impacted real property to the public in 2012.

2.1.7 Federal Facility Compliance Act

LLNL continues to work with DOE to maintain compliance with the Federal Facilities Compliance Act (FFCA) Site Treatment Plan (STP) for LLNL, which was signed in February 1997. LLNL completed 6 milestones during 2012. An additional 44.8 m^3 of newly generated mixed waste was accepted into the approved storage facilities and added to the STP. LLNL removed approximately 35 m^3 of mixed waste from LLNL in 2012.

Reports and certification letters were submitted to DOE as required. LLNL continued the use of available commercial treatment and disposal facilities that are permitted to accept LLNL mixed waste. These facilities provide LLNL greater flexibility in pursuing the goals and milestones set forth in the STP.

2.1.8 Toxic Substances Control Act

The Federal Toxic Substances Control Act (TSCA) and implementing regulations found in Title 40 of the Code of Federal Regulation, Parts 700–789 (40 CFR 700–789) govern the uses of newly developed chemical substances and TSCA-governed waste. In 2012, LLNL did not generate, store or dispose of any TSCA-regulated PCB waste.

2.2 Air Quality and Protection

2.2.1 Clean Air Act

All activities at LLNL are evaluated to determine the need for air permits or equipment registrations. Air permits are obtained from the Bay Area Air Quality Management District (BAAQMD) for the Livermore Site and from the San Joaquin Valley Air Pollution Control District (SJVAPCD) and/or BAAQMD for Site 300. The BAAQMD also administers a boiler registration program for natural gas fueled boilers with rated heat input capacities greater than 2 million British Thermal Units per hour (Btu/hr) and less than 10 million Btu/hr.

Both the BAAQMD and the SJVAPCD are overseen by the California Air Resources Board (CARB). CARB also oversees the statewide permitting for portable diesel fuel-driven equipment such as portable generators and portable air compressors. In addition, CARB presides over the state-wide registration of in-use off-road diesel vehicles, such as diesel powered forklifts, loaders, backhoes, graders, and cranes.

In 2012, LLNL operated 178 permitted air-pollutant emission sources at the Livermore Site and 36 permitted air-pollutant emission sources at Site 300. In addition, the Livermore Site continues

to maintain a Synthetic Minor Operating Permit (SMOP), which was initially issued by the BAAQMD in 2002 and revised in 2009, to ensure the Livermore Site does not emit regulated air pollutants in excess of federal Clean Air Act (CAA) Title V limits. As such, LLNL is able to demonstrate that it does not have any major sources of air pollutant emissions per 40 CFR 70.2. In 2012, LLNL also maintained the registrations for 38 natural gas boilers with the BAAQMD and continued the registrations for 79 in-use off-road diesel vehicles with CARB.

Under the authority of California Assembly Bill 32 (AB32), the State of California has adopted several new regulations regarding emissions of greenhouse gases (GHG). Initially, California required the mandatory reporting of stationary emission sources from combustion of natural gas that exceeded 25,000 metric tons per year of CO_2 equivalent emissions. For the mandatory reporting years of CY2009, CY2010, and CY2011, the Livermore Site was slightly below the reporting threshold. Beginning in CY2012, California lowered the mandatory reporting threshold to 10,000 metric tons per year of CO_2 equivalent emissions, and consequently LLNL started reporting emissions for CY2012. LLNL continues to implement reductions and controls that should reduce CO_2 emissions in future years. LLNL is replacing diesel engines, boilers and hot water heaters on a continuing basis, and the new equipment is more efficient than the replaced equipment, in terms of fuel use and air emissions, such as CO_2. LLNL Site 300 emissions of CO_2 are much lower than Livermore Site emissions, and there is no natural gas service at Site 300 that would generate CO_2 emissions.

Also under the authority of AB32, California has adopted special regulations pertaining to sulfur hexafluoride (SF_6), because of its high GHG potential. In CY2012, LLNL was required to submit an annual report to CARB describing the research uses of SF_6 and the measures taken to control the SF_6 emissions from such research activities, and was required to keep records on the amounts of SF_6 contained in and used for electrical switchgear. The reduction of greenhouse gases has been further encouraged by Executive Order 13514, which establishes an integrated strategy towards sustainability in the Federal Government and to make reduction of greenhouse gas emissions a priority for Federal agencies.

In addition, the federal EPA has a mandatory reporting regulation for stationary emission sources, similar to California's regulation. LLNL is currently below the mandatory reporting threshold for EPA of 25,000 metric tons per year at both the Livermore Site and Site 300.

2.2.2 National Emission Standards for Hazardous Air Pollutants, Radionuclides

To demonstrate compliance with 40 CFR Part 61, Subpart H (National Emission Standards for Hazardous Air Pollutants [NESHAPs] for radiological emissions from DOE facilities), LLNL monitors certain air-release points and evaluates the maximum possible dose to the public. The *LLNL NESHAPs* in 2012 were 0.054 μSv (0.0054 mrem) for the Livermore Site and 000013 μSv (0.0000013 mrem) for Site 300. The totals are well below the 100 μSv/y (10 mrem/y) dose limits defined by the NESHAPs regulations. The *LLNL NESHAPs 2012 Annual Report* is located in Appendix D of this report.

2.3 Water Quality and Protection

LLNL complies with requirements of the federal Clean Water Act (CWA), Porter-Cologne Water Quality Control Act, and Safe Drinking Water Act (SDWA); the California Aboveground Petroleum Storage Act, Water Code, and Health and Safety Code; and City of Livermore ordinances, by complying with regulations and obtaining permits issued by the appropriate regulatory agencies whose mission is to protect water quality.

LLNL complies with the requirements of National Pollutant Discharge Elimination System (NPDES) and Waste Discharge Requirement (WDR) permits, and Water Quality Certifications issued by Regional Water Quality Control Boards (RWQCBs) and the State Water Resources Control Board (SWRCB) for discharges to waters of the U.S. and waters of the State. Discharges to the City of Livermore's sanitary sewer system are governed by permits issued by the Water Resources Division (WRD). The SDWA requires that LLNL register Class V injection wells with EPA, and LLNL obtains permits from the Army Corps of Engineers (ACOE) for work in wetlands and waters of the U.S.

The CWA and California Aboveground Petroleum Storage Act require LLNL to have and implement Spill Prevention Control and Countermeasure (SPCC) plans for aboveground, oil-containing containers. The ACDEH and the San Joaquin County Environmental Health Department (SJCEHD) also issue permits for operating underground storage tanks containing hazardous materials or hazardous waste (see **Table 2-2**). LLNL's underground storage tanks, for which permits are required, contain diesel fuel, gasoline, and used oil; aboveground storage tanks, for which permits are not required, contain fuel, insulating oil, and process wastewater.

2.4 Other Environmental Statutes

2.4.1 National Environmental Policy Act and Floodplains and Wetland Assessments

The National Environmental Policy Act (NEPA) of 1969 is the U.S. government's basic environmental charter. When considering a proposed project or action at LLNL, DOE/NNSA must (1) consider how the action would affect the environment and (2) make certain that environmental information is available to public officials and citizens before decisions are made and actions are taken. The results of the evaluations and notice requirements are met through publication of "NEPA documents," such as environmental impact statements (EISs) and environmental assessments (EAs) under DOE NEPA Implementing Procedures in 10 CFR 1021.

In 2005, DOE/NNSA completed the *Final Site-Wide Environmental Impact Statement for Continued Operation of Lawrence Livermore National Laboratory and Supplemental Stockpile Stewardship and Management Programmatic Environmental Impact Statement* (2005 SWEIS) (U.S. DOE/NNSA 2005). In 2011, DOE/NNSA prepared a Supplement Analysis (SA) (DOE/EIS-0348-SA-03) of the 2005 SWEIS to consider whether the 2005 SWEIS should be supplemented, a new environmental impact statement (EIS) should be prepared, or no further NEPA documentation is required (U.S. DOE/NNSA 2011). The SA examined changes in

programs, projects, or operations since the 2005 SWEIS was prepared; new and modified plans, projects, and operations for the period from 2010 to 2015; as well as new information that was not available for consideration when the 2005 SWEIS was prepared. The SA process involved an extensive public outreach campaign, including a 45-day public comment period. The SA concluded that a supplement to the 2005 SWEIS or a new SWEIS was not needed, and therefore, no further NEPA documentation was needed for the new and modified projects and modifications in site operations considered in the SA. Both the 2011 SA and the 2005 SWEIS are available on the web at http://www-envirinfo.llnl.gov.

In 2012, no other EISs, or EAs were completed. Two Categorical Exclusions under DOE NEPA Regulations (10 CFR 1021) were completed for High-Pressure Cryogenic Pump and Hydrogen Filling Station at LLNL (NA-12-20) and Radiography of Explosives Samples at B321C (NA-12-26). There were no proposed actions at LLNL that required separate DOE floodplain or wetlands assessments under DOE regulations in 10 CFR Part 1022.

2.4.2 National Historic Preservation Act

The National Historic Preservation Act (NHPA) provides protection and preservation of historic properties that are significant in the nation's history. LLNL resources subject to NHPA consideration range from prehistoric archeological sites to remnants of LLNL's own history of scientific and technological endeavors. The responsibility to comply with the provisions of the NHPA rests with DOE/NNSA as the lead federal agency in this undertaking. LLNL supports the agency's NHPA responsibilities with direction from DOE/NNSA.

In 2005, in consultation with DOE/NNSA, the California State Historic Preservation Officer (SHPO) formally determined that five archaeological resources, five individual buildings, two historic districts (encompassing 13 non-contiguous individual buildings), and selected objects in another building at LLNL are eligible for listing in the National Register of Historic Places (NRHP). To assist DOE and SHPO in developing an agreement as to how to manage the NRHP-eligible properties, LLNL prepared a draft Programmatic Agreement (PA), which includes a draft Archaeological Resources Treatment Plan and a draft Historic Buildings Treatment Plan as attachments. These plans describe specific and optional resource management and treatment strategies that DOE/NNSA, in cooperation with LLNL, could implement to ensure that NRHP-eligible historic properties under LLNL's jurisdiction are managed and maintained in a way that considers the preservation of historic values in compliance with Sections 106 of the NHPA. In 2012, DOE/NNSA invited the Advisory Council on Historic Preservation (ACHP) to be a signatory to the PA. As of the end of 2012, the draft PA and treatment plans were being reviewed by ACHP and SHPO.

In 2011, LLNL completed a five-year re-evaluation of the historic building assessment originally completed in 2004 (published in 2007). The five-year cycle of re-evaluations for NRHP-eligibility is a requirement of the draft PA. Final recommendations from the re-evaluation include allowing two of the five existing NRHP-eligible buildings to be removed from the inventory of historic properties and allowed to evolve as needed to meet LLNL's scientific mission requirements. These two buildings have been preserved via recordation, a mitigation option

identified in the draft Historic Buildings Treatment Plan. One building was recommended for addition to the inventory of NRHP-eligible buildings. As of the end of 2012, the five-year re-evaluation report was being reviewed by SHPO.

2.4.3 Antiquities Act of 1906

Provisions of the Antiquities Act provide for protection of items of antiquities (i.e., archaeological sites and paleontological remains). The five NRHP-eligible archaeological sites noted in Section 2.4.2 are protected under the Antiquities Act. No paleontological remains subject to the provisions of the Antiquities Act were identified in 2012.

2.4.4 Endangered Species Act and Sensitive Natural Resources

LLNL meets the requirements of the federal and state Endangered Species Act (ESA), the Eagle Protection Act, the Migratory Bird Treaty Act, and other applicable regulations as they pertain to endangered species, threatened species, and other special-status species (including their habitats) and designated critical habitats that exist at the LLNL sites. The following list highlights 2012 compliance activities:

- On May 25, 2012, DOE/NNSA requested formal consultation with the U.S. Fish and Wildlife Service (FWS) for the construction of a photovoltaic system and site-wide electrical infrastructure upgrades at LLNL's Livermore Site. On November 13, 2012, the FWS issued a Biological Opinion (BO) and Incidental Take Statement for these projects.

- On June 13, 2012, DOE/NNSA requested formal consultation with the FWS for the Upper Round Valley Culvert Replacement and Habitat Enhancement project. On September 4, 2012, the FWS issued an amendment to the *Formal Consultation on the Routine Maintenance and Operation Projects at the Lawrence Livermore National Laboratory, Site 300 Experimental Test Site* for the Round Valley project.

2.4.5 Federal Insecticide, Fungicide, and Rodenticide Act

LLNL complies with the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), which provides federal control of the distribution, sale, and use of pesticides and requires that commercial users of pesticides are certified pesticide applicators. The California Department of Pesticide Regulation (DPR) has enforcement responsibility for FIFRA in California; DPR has in turn given enforcement responsibility to county departments of agriculture. All pesticides at LLNL are applied, stored, and used in compliance with FIFRA and other California, Alameda County, and San Joaquin County regulations governing the use of pesticides. The staff of the Landscape and Pest Management Shop at the Livermore Site and the Laborer/Gardener Shop at Site 300 includes certified pesticide applicators. These shops ensure that all storage and use of pesticides at LLNL is in accordance with applicable regulations. LLNL also reviews pesticide applications to ensure they do not result in impacts to water quality or special status species.

2.5 Environmental Permits, Inspections, and Occurrences

LLNL's various missions require a variety of permits. **Table 2-2** is a summary of active permits in 2012 at the Livermore Site and Site 300. The external agencies that issue the permits may also perform inspections required by the permits. **Table 2-3** lists environmental inspections and findings from both LLNL sites in 2012.

Notification of environmental occurrences is required under a number of environmental laws and regulations as well as DOE Order 232.2. **Table 2-4** provides a list of environmental incidents reportable under DOE Order 232.2.

Table 2-2. Active permits in 2012 at the Livermore Site and Site 300.

Type of permit	Livermore Site[a]	Site 300[a]
Hazardous waste	EPA ID No. CA2890012584. Hazardous Waste Facility Permit Number 99-NC-006 (RCRA Part B permit)—to operate hazardous waste management facilities. Registered Hazardous Waste Hauler authorized to transport wastes from Site 300 to the Livermore Site. Permit number 1351. Conditionally Exempt Specified Wastestream Permit to mix resin in Unit CE231-1. LPFD permit 092811-10697. Hazardous Waste Generator Program, Hazardous Materials Business Program, Above Ground Petroleum Tank Program, CA Accidental Release Program, and Underground Storage Tank Program. Permit Valid – September 28, 2011-September 26, 2016	EPA ID No. CA2890090002. Hazardous Waste Facility Permit—CSA (Building 883) and EWSF. Hazardous Waste Facility Permit—EWTF. Hazardous Waste Facility Post-Closure Permit—Building 829 High Explosives Open Burn Treatment Facility. PT0010318. Hazardous waste generation facility—SJCEHD.
Medical waste	ACDEH issued a permit that covers medical waste generation and treatment activities for the BSL 2 facilities, and the BSL 3 facility at Building 368.	NA
Air	BAAQMD issued 165 permits for operation of various types of equipment. BAAQMD issued a revision to the SMOP in 2009, which was initially issued in 2002 to ensure the NOx and HAPs emissions from the site do not exceed federal Clean Air Act Title V emission limits. BAAQMD issued 4 Asbestos Removal and Demolition Permits. CARB issued 9 permits for the operation of portable diesel air compressors and generators.	SJVAPCD issued 34 permits for operation of various types of equipment. SJVAPCD approved a Prescribed Burn Plan for the burning of 2,176.5 acres of grassland. BAAQMD issued 1 permit for the operation of an emergency diesel generator. CARB issued 1 permit for the operation of portable diesel air compressor BAAQMD approved a Prescribed Burn Plan for the burning of 139.1 acres of grassland.
Storage tanks	Seven operating permits covering 10 underground petroleum storage tanks.	One operating permit covering three underground petroleum storage tanks assigned individual permit numbers.
Sanitary sewer	Discharge Permit 1250[b] for discharges of wastewater to the sanitary sewer. Permit 1510G for discharges of groundwater from CERCLA restoration activities.	WDR R5-2008-0148 for operation of sewage evaporation pond.

Table 2-2. (cont.) Active permits in 2012 at the Livermore Site and Site 300.

Type of permit	Livermore Site[a]	Site 300[a]
Water	WDR No. 88-075 for discharges of treated groundwater from Treatment Facility A to recharge basin.[c]	WDR No. 93-100 for post-closure monitoring requirements for two Class I landfills.
	NPDES Permit No. CA0030023 for discharges of storm water associated with industrial activities and low-threat non-storm water discharges to surface waters.	WDR R5-2008-0148 for discharges to percolation pits and septic systems.
	NPDES General Permit No. CAS000002 for discharges of storm water associated with construction activities affecting 0.4 hectares (1 acre) or more.	NPDES General Permit No. CAS000001 for discharge of storm water associated with industrial activities.
	FFA for groundwater investigation/remediation.	NPDES Regional General Permit No. CAG995001 for large volume discharges from the drinking water system.
		FFA for groundwater investigation/remediation.
		32 registered Class V injection wells.

Note: See the **Acronyms and Glossary** section for acronym definitions.

(a) Numbers of permits are based on actual permitted units or activities maintained and/or renewed by LLNL during 2012.

(b) Permit 1250 includes some wastewater generated at Site 300 and discharged at the Livermore Site.

(c) Recharge basin referenced in WDR Order No. 88-075 is located south of East Avenue within Sandia National Laboratories/California boundaries. The discharge no longer occurs; however, the agency has not rescinded the permit.

Table 2-3. Inspections of Livermore Site and Site 300 by external agencies in 2012.

Medium	Description	Agency	Date	Finding
Waste	CUPA Inspection (Livermore Site)	LPFD	07/10/12 & 07/12/12	Two minor violations: **1.** Two 55-gallon drums of used oil were identified at Building 519, which does not comply with the single 55-gallon satellite accumulation limit per wastestream specified in the regulations. LLNL completed a return to compliance certification through a formal response package submitted to LPFD on August 10, 2012. **2.** One 55-gallon drum within the B-424 Corp Yard was found with a faded and illegible hazardous waste label. The drum was relabeled and moved to a waste accumulation area (WAA) during the inspection. No follow-up actions were required.
	Medical Waste Inspection (Livermore Site)	ACDEH	06/19/12	No violations
Air	Air pollutant emission sources (Livermore Site)	BAAQMD	01/26/12 02/23/12 04/26/12 05/23/12 06/28/12 08/23/12 10/10/12	No violations
	Synthetic Minor Operating Permit (SMOP) (Livermore Site)	BAAQMD	01/26/12 04/26/12 05/23/12 06/28/12	No violations
Sanitary sewer	Categorical sampling/inspection Building 153 and Building 321C. (Livermore Site)	WRD	10/17/12	No violations
	Annual compliance sampling at the Sewer Monitoring Complex (Livermore Site)	WRD	11/06/12	No violations
	Café grease interceptor inspections, Buildings 123 and 471 (Livermore Site)	WRD	11/06/12	No violations

Table 2-3. (cont.) Inspections of Livermore Site and Site 300 by external agencies in 2012.

Medium	Description	Agency	Date	Finding
Sanitary sewer	Building 235 – Review of R&D processes and discharge control procedures (Livermore Site)	WRD	06/25/12	No violations
	Building 298 – Review of R&D processes and discharge control procedures (Livermore Site)	WRD	06/28/12	No violations
	Quarterly BOD/TSS sampling at Outfall (Livermore Site)	WRD	03/28/12 06/18/12 09/18/12 12/12/12	No violations
Storage tanks	Compliance with underground storage tank requirements and operating permits (Livermore Site)	LPFD	09/11/12 & 09/20/12	Two violations: **1.** Leak sensor in the 611-G3U1 Dispenser #3-4 Under Dispenser Containment (UDC) sump failed to alarm when tested. The defective sensor was replaced during the inspection and was tested and passed. **2.** A relay in the Control Panel of the 611-D1U1 diesel tank failed to operate and allow the horn and light to function when tested. The defective relay was replaced, tested, and certified.
Pesticides	Pest control records inspections (Livermore Site)	ACCDA	02/10/12	No violations
Waste				
	Hazardous waste generator areas and permitted facilities. (Site 300)	San Joaquin County Environmental Health Department and the EPA	10/04/12 & 10/25/12	One violation: The lead acid automotive battery container outside B-875 was improperly labeled with a “non-hazardous waste” label. The violation was corrected immediately upon discovery by removing the “non-hazardous” waste label and affixing a “recyclable material” label to the container.
	Hazardous waste facilities Compliance Evaluation Inspection (CEI) (Site 300)	DTSC	03/29/12 & 04/03/12	No violations.
Air	Air pollutant emission sources (Site 300)	SJVAPCD	04/10/12	No violations
Water	Permitted operations (Site 300)	CVRWQCB	06/18/12	No violations
Storage tanks	Compliance with underground storage tank requirements and operating permits (Site 300)	SJCEHD	08/08/12	No violations

Note: See the **Acronyms and Glossary** section for acronym definitions.

Table 2-4. Environmental Occurrences reported under the Occurrence Reporting System in 2012.

Date[a]	Occurrence category/group	Description
01/03/12	Significance Category SC4 Occurrence under Group 9(1) OR 2012-0001	On December 21, 2011, LLNL received a faxed letter from the Centers for Disease Control (CDC) informing LLNL of the findings from the CDC and Animal and Plant Health Inspection Service (APHIS) team inspection of LLNL facilities from November 29, 2011 through December 1, 2011. The letter identified 11 observations of departures from nationally recognized safety standards and/or deviations from requirements. The delay in categorization of the results of this assessment as reportable to DOE/NNSA was due to the limited distribution of the report before the holidays.
06/05/12	Significance Category SC4 Occurrence under Group 5A(2) OR 2012-0021	A broken landscape irrigation valve was discovered on June 5, 2012. It is estimated that approximately 8,200 gallons of water was released. The released water entered a nearby stormdrain and is believed to have flowed off site via Arroyo Las Positas. Under LLNL Industrial Storm Water Pollution Prevention Plan and Waste Discharge Requirement (WDR) Permit 95-174, this release of chlorinated irrigation water is immediately reportable to the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB).
06/11/12	Significance Category SC3 Occurrence under Group 8(3) OR 2012-0023	On June 11, 2012, LLNL fire dispatch was contacted about an accident involving an LLNL contracted trucking company returning empty contaminated gravel containers to LLNL S300 that overturned on a Nevada State highway. The containers were empty and remained on the trailer during the accident. The driver was taken to a local hospital, treated for injuries and released (not admitted).
06/28/12	Significance Category SC4 Occurrence under Group 5A(2) OR 2011-0031	On June 28, 2012, a leaking Low Conductivity Water (LCW) line was discovered. It was estimated that approximately 500 gallons of water was released. The released water entered a storm drain leading to the Arroyo Seco and possibly flowed off site. This release of LCW is immediately reportable to the SFBRWQCB.
07/12/12	Significance Category SC4 Occurrence under Group 5A(2) OR 2011-0032	On July 8, 2012, at approximately 4:00 am, LLNL (Site 200) experienced a release of untreated water from a groundwater treatment facility. Approximately 59,900 gallons of water were released. The released water entered a drainage channel leading to the Arroyo Seco and flowed off site. This release is immediately reportable to the SFBRWQCB.
07/12/12	Significance Category SC4 Occurrence under Group 9(1) OR 2011-0033	On July 12, 2012, LLNL received two minor violations from the Livermore-Pleasanton Fire Department Certified Unified Program Agency (CUPA): A 55-gallon drum was observed with a faded and illegible hazardous waste label. The drum was identified as used oil, relabeled and moved to a waste accumulation area during the inspection. Two 55-gallon drums of used/waste oil were stored in the same location. Per satellite accumulation requirements, only one 55-gallon drum per waste stream is allowed. Both minor violations were fixed once the inspection process was completed.

Table 2-4. (cont.) Environmental Occurrences reported under the Occurrence Reporting System in 2012.

Date[a]	Occurrence category/group	Description
10/04/12	Significance Category SC4 Occurrence under Group 9(1) OR 2011-0048	On October 4, 2012, after a CUPA inspection at Site 300, a Notice of Violation (NOV) was received by the Site 300 manager for incorrect labeling. A wood shipping box containing lead acid batteries had an incorrect label. The label used was a "Non-Hazardous Waste" label instead of a "Recyclable Material" label. The labels are similar and are the same color. The original label was filled out and did identify the type of batteries correctly.
12/17/12	Significance Category SC4 Occurrence under Group 9(1) OR 2011-0058	On December 17, 2012, LLNL received written notification following a September 11, 2012, CUPA inspection of LLNL Site 200 underground storage tanks (UST). During this inspection, two minor violations were noted: A minor violation was noted due to the failure of the 611-G3U1 (E85) Dispenser # 3-4 Under Dispenser Containment (UDC) Secondary Containment Leak Sensor. The defective leak sensor was replaced during the inspection, was tested, and passed. A second minor violation was noted due to the failure of the relay in the Control Panel for the 611-D1U1 diesel tank system which caused the alarm notification light to not function properly when tested. A replacement relay was ordered and the defective relay was replaced, tested, and certified on September 20, 2012 (prior to receipt of the Inspection Report).

(a) Date the occurrence was categorized not discovered.

Contributing Authors

Dave Armstrong, Steven Cerruti, Valerie Dibley, Jennifer L. Doman, Craig Fish,Allen R. Grayson, Kelly Heidecker, Rod Hollister, Hank Khan, Greg Lee, Jennifer C. Nelson, Lisa Paterson, Vicki Salvo, Bill Schwartz, Stan Terusaki, Kent Wilson, Joseph Woods, Peter Yimbo.